
Technical note

Sustainable Winegrowing Australia – how is the program supporting producers to improve and demonstrate their sustainability?

Sustainable Winegrowing Australia is Australia's national program for grapegrowers and winemakers to demonstrate and continuously improve their sustainability through the environmental, social and economic aspects of their businesses. In the first year since its launch, the program has built on its strong foundations to provide a new level of support for Australian grapegrowers and winemakers. This article presents examples of how the program is helping grape and wine businesses to drive improvements in sustainability and to communicate better with customers and consumers.

Trust mark and marketing opportunities

A key milestone in the first year of Sustainable Winegrowing Australia has been the development of a trust mark for use by certified members of the program (Figure 1). Certified members can use the trust mark on marketing materials and wine packaging as a visible demonstration of their commitment to sustainability. Use of the trust mark on packaging provides an assurance to customers and consumers of how that product has been produced. In addition, certified members will have enhanced international marketing opportunities through Wine Australia's marketing events programs, and program members will see increased integration of sustainability stories into Wine Australia's education and content for customers and consumers.



Figure 1. Sustainable Winegrowing Australia trust mark for certified members

Case study: using data to drive down water and energy use

Electricity and fuel consumption are two of the biggest drivers of greenhouse gas (GHG) emissions and represent significant costs to vineyard businesses. At Rymill Coonawarra (a 144-ha certified member vineyard) data on energy use is reviewed annually as part of the data collection for Sustainable Winegrowing Australia. The focus areas for cutting energy use in the past two years have been reducing pumping of irrigation water and reducing tractor use.

In the past, over-watering and high rates of fertiliser application at Rymill produced vines with large canopies, which required trimming in summer. The vines also tended to have higher disease incidence and severity because of the large canopies and therefore required more spraying. To reduce canopy size, Rymill implemented an irrigation strategy which better matches the vines' water requirements. The strategy includes more intensive visual monitoring during spring and summer and validating this against traditional weather observations and forecast methods for irrigation scheduling. The business also invested in real-time soil moisture monitoring data. By implementing this more careful observation and measurement of vine and soil moisture status, blocks with higher soil water-holding capacity are able to be given less water and, in 2018/19, some blocks did not require any irrigation at all. The overall impact of this has been reduced water use compared to the previous season, with an associated reduction in energy required to pump irrigation water. In 2018/19, Rymill vineyards ranked in the lowest 12% of Sustainable Winegrowing Australia member vineyards nationally for water use per hectare (L/ha) and in the lowest 17% of member vineyards in Coonawarra, confirming the positive impact of the changed water management practices.

Five years ago, Rymill identified the use of sheep in the vineyard as an opportunity to reduce fuel use by removing the requirement for slashing and chemical weed control. Since then Rymill has grazed sheep over approximately half of its vineyard area during winter. The cost savings from reducing the requirement for slashing the mid-rows and applying undervine herbicide have driven the decision to expand the grazing to more than 90% of the vineyard area in 2020. Since 2017/18, Rymill has achieved a 30% reduction in total on-site GHG emissions through a combination of reduced irrigation application and grazing sheep in the vineyard.

Case study: water and soil management to manage vine vigour

Bantry Bay vineyard in Margaret River, WA, part of the FABAL Group, is another certified member of Sustainable Winegrowing Australia and has been working on improving its water and soil management. The vineyard manager uses Sustainable Winegrowing Australia benchmarking reports to monitor vineyard performance from year to year and identify opportunities for improved management.

Water management at Bantry Bay vineyard is guided by a plan that identifies yield and grape quality targets and includes a water budget, combined with regular monitoring of soil moisture, weather conditions and irrigation applied throughout the year. In summer, irrigation is applied to red varieties at the key phenological stages of flowering and veraison, and only when critical thresholds are met. These are determined by a combination of visual observations of leaf and tendril turgor and soil moisture monitoring. Bantry Bay was ranked in the lower 35% of Sustainable Winegrowing Australia members for its water use (ML/ha) in 2018/19, an improvement from 42% in 2017/18.

The vineyard site receives approximately 800 mm of winter-dominant rainfall and in most years the soil profile and the dam are full of water throughout spring. The greatest challenge during this period is to limit the vines' access to soil moisture and manage high vine vigour. Mid-row cover crops and permanent swards are maintained in these areas during spring to provide competition with the vines for water. Cover crop species include a combination of volunteer oats and clover and a mix of perennial grass species. In most years, the cover crop is allowed to set seed and it regenerates perennially. The cover crop is monitored along with vine growth and soil moisture throughout the spring period. If the cover crop is found to be competing too strongly with the vines for moisture, it can be mown or rolled down to provide mulch in the mid-rows. If water supply to the vineyard ever runs low, the contingency plan is to either remove the mid-row cover crops in alternate rows or remove them much earlier in the season to reduce competition with the vines.

Linking environmental and financial data

Sustainable Winegrowing Australia has recently wrapped up a collaborative project with National Australia Bank and the Queensland University of Technology that formed part of the Food Agility Cooperative Research Centre (CRC). In a first for Australian agriculture, this project linked environmental benchmarking data to financial information and developed a pilot sustainability indicator (Resource Intensity Score) for the wine sector. The project took advantage of Sustainable Winegrowing Australia's existing extensive environmental dataset and collected additional financial information from growers to test the hypothesis that environmental information can enhance financial decision-making.

The project collected financial data from 67 vineyards and used this to benchmark performance and identify characteristics associated with the highest and lowest performing vineyards according to gross margin. Overall, per tonne of grapes harvested, vineyards with the top 10% gross margin tended to have higher yields, lower operating costs and lower average selling price (\$ per tonne) compared to vineyards with the bottom 10% gross margin. A pilot sustainability indicator was developed based on a vineyard's water use, energy use

and carbon emissions per tonne of grapes produced. In general, vineyards with a higher gross margin tended to be more resource-use efficient than those with a lower gross margin. Vineyards with higher margins used less water, less energy and emitted less greenhouse gases for every tonne of grapes produced (based on median values).

Future work will enable a better understanding of potential trade-offs between environmental factors, financial and production decisions and how vineyards in different regions respond to environmental stresses over time. This dataset may also be used to understand business resilience in the context of resource dependencies and climate change.

Next steps for Sustainable Winegrowing Australia

Now that the trust mark has been launched and the initial Food Agility CRC project has been completed, the focus for Sustainable Winegrowing Australia for the next year will be on:

- supporting members to incorporate program data into their businesses
- assisting businesses to pursue certification
- helping members to share sustainability stories with customers and consumers.

More information about the program is available at sustainablewinegrowing.com.au.

Acknowledgements

The AWRI's communications are supported by Australia's grapegrowers and winemakers through their investment body Wine Australia, with matching funds from the Australian Government. The AWRI is a member of the Wine Innovation Cluster in Adelaide, SA. The development of the Sustainable Winegrowing Australia member case studies was supported by the Food Agility Cooperative Research Centre. The assistance of Shannon Sutherland (Winemaker & General Manager, Rymill Coonawarra) and Richard Bateman (Regional Manager, FABAL Group) with the development of the case studies is also acknowledged.

Mardi Longbottom, Manager – Sustainability and Viticulture
mardi.longbottom@awri.com.au